

COOP'S TECHNOLOGY DIGEST

-A Timely Report on The World of Communications-

Published as a confidential industry newsletter ten times each year by electronics and technology author Robert B. Cooper. Reports here are source checked for accuracy prior to publication; readers are cautioned to conduct their own verification of data prior to formulating business judgements based upon reports here. Data of unverified authenticity may be so-labelled as a guide to reader caution. The publisher draws upon 41 years of leading edge electronic industry media experience but can be misled by those with clever agendas. Entire content Copyright 2001 by Robert B. Cooper. When lifting material, please be courteous enough to credit source (i.e., "*as reported in Coop's Technology Digest for ...* "). CTD accepts no source payment for publication of information here. **Making "extra copies" for staff use without our written permission is a violation of our copyright**, whether the entire publication or portions. Reasonable "Replication Rights" are available to those who find the need to "share" contents with non-subscribers. Query to Gay Cooper at 64-9-406-0651. Our objective? *"To keep the bastards honest."*

MAY 02, 2001 - ISSUE 01-04-77

-IN THIS ISSUE-

Australian digital terrestrial - slow start - p. 2

Unravelling the TARBS Enigma -p. 2; Australian broadcasters join hands -p. 4; Sport anti-siphoning rules under attack -p. 4; Carlton/Granada reassess ONdigital future -p. 7; BBC to help fund digital transition -p. 8; ONdigital changes name, splits in thirds -p. 9; Status of BSkyB Office of Fair Trading Inquiry -p. 11; TelstraSaturn's DVB-S launch problems -p. 13; US task forces blesses 8VSB -p. 14; FCC field testing of 8VSB found wanting -p. 16; Internet loser - NBC Internet -p. 16; Internet radio streaming comes to screeching halt - p. 17; Venture Capital for ISPs is dead -p. 18; Yet another gee-whiz system to display TV pictures -p. 18; Mexican TV Azteca to "bare all" -p. 19; BSkyB introduces 'Sky Scope' to cricket match coverage -p. 19

Technology Bytes - Industry News Updates

Optus subtly changes stance on Aurora smart cards - p. 20; Turner's other shoe - with TCM movies closing July 1 - p. 20; TEAC brand enters Australian DVB-T set-top market - p. 21; FCC chief suggests over air terrestrial broadcasting may have reached end of its life cycle - p. 21

REACHING CTD: Telephone (64) (0)9-406-0651; 24 hour fax (64) (0)9-406-1083.

e-mail Skyking@clear.net.nz. Web site: <http://www.satfacts.kwikkopy.co.nz>

Next scheduled issue: June 02, 2001

COOP'S TECHNOLOGY DIGEST / SUBSCRIPTION INFORMATION

There are ten (10) issues per year on a schedule dictated by industry events. The readership includes telecommunication industry consultants, state and privately owned broadcasters/telecasters, brown goods importers, retail stockists, installation and maintenance firm personnel, manufacturers, educators, regulatory agency personnel, business investors and Sir Arthur C. Clarke. All copies sent via airmail / Fast Post, world-wide. Annual subscription fee is as follows: Within New Zealand - \$250; within Australia, through AV-COMM Pty Ltd., PO Box 225, Balgowlah, NSW 2093 (tel [61]-2-9939-4377 or fax [61]-2-9939-4376). Outside of Australia and New Zealand, US\$250 per year. Outside of Australia, please make out subscription payment and mail to:

Robert B. Cooper, PO Box 330, Mangonui, Far North, New Zealand

Now - Our Eighth Year of Service to the Pacific

COOP'S TECHNOLOGY DIGEST

May 02, 2001 - VOLUME 01-04-77

What is happening in the digital transition world -

(Australia) Digital TV suffers from poor reception. Three months after transmissions began, only 2,500 customers have bought or rented the equipment needed to receive the sharper pictures and multiple views of digital television. The \$699 set-top boxes began arriving in department and electrical stores in mid-January, but sales have been slow. A television sales consultant at Grace Bros in the Sydney CBD, Mr Razi Uddin, said that, despite being advertised in the Grace Bros catalogue twice, the store had sold only "eight or nine" set-top boxes. Two were returned after customers said they could not perceive any improvement in picture quality. The city department store has also had difficulty demonstrating the new digital service because its antennae requires a costly upgrade to receive digital signals. David Jones's national buyer for audio visual, Mr Felix Langtheller, was more upbeat about early experiences with digital television. He declined to reveal sales figures, but he said David Jones *"was not displeased with the early sales results"*. At Dick Smith Powerhouse stores, a combination of early adopters and people with poor analog reception have bought the set-top boxes, the company's spokeswoman Ms Nicola Rutzou said. But she also refused to release sales figures, saying only that the company was "quite happy". Uptake of new technology is often slow in the early years, but the Government's decision to restrict new datacasting services and ban multi-channelling means Australia is following the United States model and relying on better picture quality, rather than access to new channels, to drive digital conversion. By comparison, Australians bought 21,000 DVD players in the first 12 months of their introduction. The head of Nine Network Digital, Ms Kim Anderson, said the company was "very pleased" with sales so far, with more than 4,000 boxes sold to retailers and about half of those now in homes. She said that rental packages, which included wide-screen television sets with digital set-top boxes were popular. *"One issue seems to be the availability of wide-screen sets in the Australian market,"* she said. Digital television is screened in 16:9 wide-screen format, instead of the more boxy 4:3 of standard television. Although a digital set-top box can be attached to a normal set, the full benefits of the improved picture are better appreciated on a good wide-screen set that costs more than \$1,800. Only one or two brands have been available in Australia so far, but more are expected to hit the market in the next three months. Mr Scott Lorson, Thorn's general manager, whose businesses include Rentlo and Radio Rentals, said the experience so far was similar to DVD. Thorn had rented out about 200 wide-screen digital packages and anticipated being able to rent between 100 and 200 a month. *"It's really the wide screen that's impressive. We've had customers ringing us to say how good it is,"* he said. While DVD uptake had been driven by the desire to see films in wide-screen format, the uptake of digital TV would be driven by a desire to view sports programs, he said. The commercial television networks spent \$6 million to underwrite the production of the first generation of digital set-top boxes made by Thomson Multimedia. The broader picture: 1) Digital television offers sharper, clearer pictures free of ghosting and has CD quality sound. Most programs are broadcast in wide-screen format and coverage by multiple camera angles is offered for big sporting events. 2) To receive digital broadcasts you need a set-top box costing \$699. 3) Transmission began on January 1. Analog broadcasts will continue until at least 2008 when the Government hopes most people will have bought digital sets.

...

THERE'S an old yarn about a lost tourist in Ireland asking how to get to Dublin, and the farmer scratching his head and saying: *"Ooh, if you'd be wantin' to get to Dublin, you wouldn't want to be startin' from here."* Some feel a bit that way about Mike Boulos's plans to take on the world as the ultimate niche-meister of subscription television and radio services. Australia is an odd place to start. So far, he says, he's sunk \$250 million into his grand plan, but for most of us, and the rest of the

world, it is a well-kept secret. That should change locally in a couple of months when Boulos hits the marketing button for what he calls his "emotional TV" services. "We are offering migrants a way to keep in touch with the countries of their birth," he told boasts. *"It's not just a foreign language service – it is an emotional attachment, for just \$60 a month."* Boulos's company, Television and Radio Broadcasting Services Australia Pty Ltd (TARBS), has been a peripheral player in the pay TV business in Australia since the saga began amid political and regulatory turmoil in the early 1990s. He made his first pile of money from the Computerland chain of stores, which he developed in Australia in the early 80s. He sold out within the decade, but became diverted from his road to retirement by helping build the studios and operational platforms of pay TV's first player, Australis Media. When Australis went to the wall Boulos picked up the hardware for a song, and paid \$60 million for Australis's suite of multi-point distribution system (MDS) microwave licences in Australia's capital cities. Last year, regional pay TV operator Austar paid \$140 million for the licences to be used for its now-stalled broadband wireless internet service. For Boulos, it was a nice little earn, as they say. While the pay TV participants have been slugging it out trying to build a viable mainstream business, Boulos has played the niche game. He reasons that there are 1.5 million homes in Australia where the occupants come from a non-English-speaking background, and he is confident he can attract 350,000 subscribers from this market in the next three years. That sounds very optimistic, given that the three Pay TV operators, Foxtel (750,000) Optus (200,000) and Austar (400,000) have managed to capture just 1.3 million of Australia's 6.5 million homes in four years. And it may be doubly difficult because most of Boulos's services require a separate, dedicated direct-to-home satellite dish, rather than being offered as an add-on to existing services, such as Foxtel. This means he needs his own subscriber call centre and subscriber management systems, two of the most expensive elements of any pay TV service. But Boulos is confident. He already has 26 ethnic and English language video channels and 60 radio services in 14 languages broadcasting across Australia. That number of video channels will rise to 39 shortly, on its way to Boulos's target of 52 channels in 20 languages. TARBS's initial services, which began in 1999, covered Cantonese, Mandarin, Italian, Filipino, Arabic and Spanish languages. Since then Korean, German, Turkish, Russian and Macedonian have been added, and a new satellite deal recently completed will give capacity for three new channels from the Balkans, two Greek, a new Russian and Portuguese, and South Asian channels. Boulos says he has 25,000 subscribers, paying \$60 a month, and needs 70,000 to break even. That implies current revenues of \$18 million a year and costs of \$50 million a year. It also implies super profits if he can reach his goal of 350,000 subscribers, which would yield subscription incomes of \$250 million per annum. And then there is the rest of the world. Boulos says he has agreements with program suppliers in all major languages, and accesses three satellites – PanAmSat, Thaicom 3 and AsiaSat 2 – via uplink and downlink portals in Greece and Egypt. This gives him the potential to deliver his programming to all of Asia, Africa and the US west coast. Which brings us back to the question: Why start here? The Australian market is tiny by comparison with Asia, or the US. The mainstream pay TV operators are still under water by billions of dollars, and if they can't make it work with all their marketing muscle, how can a niche operator expect to hit pay dirt? Especially when every new subscriber costs TARBS \$1200 to connect. Boulos admits there's a time lag before he gets a return from each subscriber. The 60cm dish and set-top box required to access his services costs an average \$1200 to supply and install, which means returns are in the red until the third year of connection. The "churn" factor – people subscribing, then cancelling or changing supplier – has cost the mainstream pay TV players dearly but Boulos says his churn is a mere 1 per cent because of the emotional attachment people have to his services. *"They can have the radio on, listening live to the news, weather and traffic in their home towns,"* he says. *"I know of some who have even taken part in radio talk back on the other side of the world."* Boulos believes his services will do a job in multicultural Australia that SBS was set up to do, but can't. He says SBS, being free-to-air, must try to be all things to all its ethnic groups, while his channels can specifically target large numbers of small groups. If he is right, and he manages to sign up a fair proportion of non-English speaking homes, Boulos believes SBS will become more like Britain's Channel 4, a speciality broadcaster with a strong leaning towards educational services. But he won't have the ethnic field to himself. Greek and Italian services are already provided as an add-on to Foxtel's services, and Boulos will soon be joining them with, he hopes, four "superstation" ethnic channels. Boulos joined with the Seven network in a Federal Court challenge to Foxtel's refusal to

allow access to the Telstra cable. They won, and in a Australian Competition and Consumer Commission ruling, a fee of \$2.3 million per annum per channel has been set for access to the cable and Foxtel set-top boxes. This means Boulos will now be able to distribute his programming via a variety of platforms. It is a bold strategy which will work only if you believe the ethnic niche audiences will behave differently to those in the mainstream. If not, it will be a very costly experiment.

...

MIKE Boulos's Television & Radio Broadcasting Services has become the second company to gain access to Foxtel's cable network, following on the heels of Channel Seven. Mr Boulos received an interim determination on access charges for the cable from the Australian Competition and Consumer Commission last Wednesday. The ACCC gave Tarbs access to four channels after providing Seven access to an initial two channels the previous week. But while Tarbs' main satellite business is focused on ethnic broadcasting, Mr Boulos said his cable-specific services might be styled as more general entertainment services. That was because the determination, like Seven's, set a flat access fee per channel rather than per subscriber. *"I can't be definite (on the programming) given what the determination has been. It (ethnic programs) might make it financially suicidal,"* he said. *"Given the sort of dollars to be paid for access, it requires us to look closely at how we can most penetrate the existing subscribers on that network, so we are looking closely at all options."* They include a strong multicultural channel based on Tarbs' existing services and other English-based channels, such as ESPN. But Mr Boulos maintained the channels would not be similar to Foxtel's, but would instead "enhance the existing Foxtel line-up". He hoped the channels would be available through the Telstra cable in two to three months.

...

The free-to-air TV stations have put aside individual differences to form a joint digital TV strategy group to drive the introduction of interactive TV. National broadcasters ABC and SBS have joined members of the Federation of Australian Commercial TV Stations to jointly overcome the hurdles facing the new media. They include development of a common operating system for the set-top boxes initially needed to receive digital signals, management of the channel sending requested information back to viewers, set-top box compliance and management of the electronic program guides. FACTS will employ a project manager to oversee the progress of the Digital TV Strategy Group. FACTS chairman Judi Stack said the group's members had agreed they should work towards the adoption of Multimedia Home Platform as the common operating system for the boxes. *"While all of the commercial stations and the national broadcasters have separate strategies for digital TV, there is strong support across the industry for progressing management issues,"* she said. *"That includes developing a common platform that will allow viewers to access different services regardless of which set-top box or integrated TV receiver they have purchased."* She said the group would work closely with manufacturers and retailers to ensure a co-ordinated approach to the roll out of next-generation TVs and set-top boxes.

...

Almost all overseas cricket tours and up to five AFL matches a week could be shown on pay-TV under a proposal tabled yesterday. Pay-TV network Fox Sports wants access to a range of sporting events currently offered to free-to-air stations first. It has called for many of these events to lose their protected status in a submission to a Federal Government review of the anti-siphoning list. Along with football and cricket, Fox Sports wants access to: All soccer matches except the World Cup final; the first three rounds of the golf majors, as well as the Australian Open and Masters. All grand slam tennis matches bar the finals and semi-finals. All Formula One grand prix, bar the Australian race. Cable stations believe many of the sports on the protected list are not being shown by conventional broadcasters and should be available to them. They also want both pay-TV and free-to-air TV to have the chance to simulcast events shown on each other's networks. But free-to-air stations say the list ensures adequate sporting coverage for the 80 per cent of viewers without pay-TV. They want the Olympics, the Commonwealth Games and the National Swimming Championships added to the list. The current list, which expires in 2004, is being reviewed by the Australian Broadcasting Authority on behalf of Communications Minister Richard Alston. Lack of interest from conventional broadcasters has seen several cricket fixtures temporarily deleted from the list. Free-to-air broadcasters have sometimes been reluctant to disrupt programming schedules for sporting events resulting in many

"protected" events ending up on pay-TV. But the list has stopped Australia emulating Britain or New Zealand, where most major fixtures appear exclusively on pay-TV. In its call for change, Fox Sports said the list should be scrapped if "sensible" reforms cannot be achieved. "It is clearly exploited by the free-to-air networks as a protective measure against fair competition rather than a mechanism to ensure listed events are broadcast live and in full," its submission says. But the Federation of Australian Commercial Television Stations warned of rising costs for sports fans if the list is altered. "Reduction of the list would result in Australians being forced to pay significant amounts to watch events which they have been previously allowed to see free," its submission says. Although sporting rights are often offered exclusively to either pay-TV or free-to-air TV, there have been joint broadcasts. Under next season's AFL rights package, fans will see five games on free-to-air TV with the remainder shown on cable. Both the government and the Opposition have said they do not want to see any reduction in the amount of AFL shown on free-to-air TV.

...

(England) At the start of the Easter holiday, there was intense speculation about the future of two of the biggest brands in the digital landscape - ONdigital and Open. The debate about Britain's digital terrestrial pay-platform was launched by the news, given to the City on Tuesday, that the company's two shareholders - Carlton and Granada - are conducting "a strategic review" of how best to develop ONdigital. The blunt fact is that, despite passing that one-million milestone at the end of 2000, growth since then has been disappointing. The reduced net gain in subscribers in the first quarter being reported in *The Independent* today would never power them towards the second million in 2002! The cost has been huge - around £15million per year per shareholder. The massive promotion of prepaid boxes at the end of 1999 and early last year is coming home to roost with the boxes being returned, creating churn at around 25 per cent. Anecdotal evidence, not confirmed, suggests that customers like the digital experience but are attracted by even more channels on other platforms. The period has coincided with the rollout of digital in an increasing number of cable franchises. The other part of the problem is that signal quality in some parts of the country is still disappointing: many customers need their aerial systems replacing - negating the attractions of ONdigital's "plug-and-play". Even the name of the channel is up for review; last week Rob Fyffe, the broadcaster's Chief Operating Officer told the European Broadcasting Summit that nothing was ruled out. He suggested that the platform, if not the company, could even be rebranded as "ITV Digital". This would increase the potential for promotion on Channel 3 - essential for success. However, it would infuriate programme-suppliers (like BSkyB) and the other major DTT operator - the BBC. The dilemma for ONdigital is that the neurotic City dealers simply compare the company's modest million subs against Sky's five and draw simplistic conclusions. They forget that BSkyB digital started with a massive analogue subscriber-base and the most-sophisticated direct marketing operation in Britain. They also forget how close Sky itself once came to failure a decade ago. One difference is the ability of a single entrepreneur to "bet the ranch" as Rupert Murdoch did to ensure BSkyB's triumph and the corporate caution of City investors. There's another more crucial component which could contain the basis for ONdigital's eventual triumph - integrated digital televisions (IDTVs). On Monday, Stuart Prebble the Chief Executive of ONdigital made an uncharacteristic attack on the UK Government. Speaking at the UK Digital TV Conference in London, he said *"Since Chris Smith made his announcement about analogue switch-off, more than 6 million TV sets have been sold in the UK. All but maybe 150,000 of them have been analogue. That means the mountain we have to climb in order to switch off the analogue signal is as many as 6 million sets higher than it might have been."* He also commented on the lack of new free-to-air product and on-screen promotion to boost DTT. *"We've done fairly well. But it hasn't been easy for any of us. After a difficult start, BBC News 24 is not a bad service. But we have to hazard a guess that not many people have gone digital in order to see it. BBC Choice and BBC Knowledge are more or less invisible, and no one believes they have attracted more than a handful of viewers to go digital,"* he told the audience. *"ITV has launched ITV2. Once again, you'd have to guess that so far not many people have rushed out to buy a digital TV to see it."* It can not have been a coincidence that this period has seen the launch of the DVB logo campaign to boost the sales of IDTVs, driven by Granada and Carlton. There has been some early evidence that the campaign is beginning to bear fruit. Prebble waved an ONdigital conditional-access module, no bigger than a 3.5-inch floppy disk at the audience. Plugged into the back of an (unsubsidised) IDTV, it provides access to ONdigital at the fraction of the

cost of a set-top box. This of course would dramatically slash the current high acquisition cost per customer. Customers might also be discouraged from churning into satellite by the need for external installation. The future of IDTV's seems to have been boosted by two recent surveys, which forecast remarkable growth for free-to-air DTT. There is a credible argument that, as the current £200 premium on integrated TVs drops with increased production, IDTVs will become the norm for replacements. If the Government approves the BBC's plans for new FTA digital channels later this year and if reasonably priced IDTVs come into the market during the last quarter (in time for Christmas) the future for ONdigital may look a lot healthier! It is also significant that Tony Ball, chief executive of BSkyB, is reported to be considering a cutback on special offers he has used to lure customers, in response to a similar move from ONdigital hinted at in Tuesday's City briefings. Meanwhile, what about OpenTV? There is a brand issue here too. There is no doubt that Open is a successful e-shopping mall. But, it sits oddly to one side of BSkyB and apart from the massive success of on-line betting. John Florsheim, MD of Open.... is now being "rebranded" as Managing Director of Sky Interactive.

... Sky finds its limit as the war with ONdigital ends. Toby Ball, chief executive of BSkyB, is considering cutting back on special offers he has used to lure customers, in response to a similar move being planned by rival ONdigital. Any change would mark a truce in the digital TV wars, which have seen Sky and ONdigital spend hundreds of millions of pounds on free set-top boxes and cut-price subscriptions and marketing to attract customers. It is a battle which has left Sky the market leader. Yesterday, shares in BSkyB surged 36 to 820p. ONdigital's shareholders, Granada and Carlton, also rose strongly, up 6.75p to 158.5 and 17.5 to 386 respectively. The two companies are expected to announce shortly that they have completed a strategic review and are trimming investment in ONdigital, which has been costing them over £300m a year. They may also rebrand the service ITV Digital. ONdigital's cut in promotional spend is likely to be matched by Sky. A spokesman for BSkyB would not comment yesterday, except to say: *"Sky makes decisions in the market place based on a number of factors."* Another source said: *"If you make dog food and your competitors increase their prices everyone else changes their equations too. That's obvious."* Any change would not see an end to the free set-top box for new subscribers, which currently cost Sky £180 each. However, Sky may increase the cost of subscriptions by juggling the 90 different packages now available, and boost revenues from Open, its interactive service. Yesterday, Neil Blackley, the Merrill Lynch media analyst, upgraded BSkyB to a buy. He reckons Sky has added another 500,000 subscribers this quarter, taking the total to 5.2m. Traders said the upgrade had helped to boost sentiment around the entire media sector.

... Digital 'land grab' gives way to fight for survival. Winning customers for digital television has proved a costly exercise and ONdigital is under mounting pressure to cut spending. The multi-billion pound bill for converting Britain to digital television is coming home to roost at a rather inconvenient time for ONdigital, BSkyB and the cable operators. The severe bear market in media stocks and the realisation that virtually unlimited capital spending cannot go on forever has occasioned anxious strategy reviews to consider how to cut costs, notably in the subsidy of digital set-top boxes, and raise monthly revenues from existing subscribers. What started out as a digital land grab, which was often compared to a 21st century gold rush, is now turning into a battle that only the fittest may survive. ONdigital, the digital terrestrial platform co-owned by Granada and Carlton Communications, is under pressure from its shareholders to reduce its current £300m per year development cost and bring forward its break-even date currently anticipated to be in 2004. To that end, Carlton and Granada have told City analysts that they are reviewing how best to develop ONdigital amid concerns that the quarter to March saw net subscriber gains of fewer than 40,000 and a rising tide of customer disconnections. Commenting on the strategic review that is addressing ONdigital's future, a source at Carlton said: *"It's only natural that after a period of growth when you achieve 1 million subscribers that you reassess the land grab. Maybe that does mean reining in spending to a degree."* Though the share prices of Carlton and Granada have plunged as the tech and media stock boom turned to bust, sources denied that the market downturn was responsible for the reassessment of ONdigital just a fortnight before it is scheduled to release first-quarter operating statistics. *"It's not a knee-jerk reaction,"* said one insider. *"It's Granada and Carlton looking at how they can grow the business ... independent of market*

conditions." A year ago the future looked far brighter. Carlton and Granada were riding the millennium advertising boom and long-term prospects seemed rosy. Capital investment in digital platforms and the internet was considered a must-do and ONdigital itself, despite being three or four years from breaking even, was valued at around £2bn. Now that figure is perhaps £1bn. Moreover, today's business and market environment is rather different. Carlton and Granada, owners of all the ITV franchises in England and Wales, are facing a severe downturn in advertising revenue. Against that backdrop the £150m that each company is expected to put up to back ONdigital each year is becoming increasingly burdensome. Commenting on the reassessment at ONdigital, Simon Baker, analyst with SG Securities, said: *"The rumours that the company will cut spending on subscriber acquisitions and digital set-top box subsidies, and refocus on customer retention, makes sense."* ONdigital also faces deep seated competition from cable operators NTL and Telewest Communications. Although both companies have been handicapped by shoddy customer service and the industry's earlier fragmented ownership structure, they still have over 3 million pay-TV subscribers - triple the number of ONdigital. They are also able to bundle television with internet and telephony service - a strategic advantage that could also pose long-term problems for BSkyB. For the moment, however, it is Rupert Murdoch, chairman of BSkyB, who has the strategic upper hand. He has bet £2.4bn to put the satellite broadcaster in the pole position for Britain's digital future. Rather than consider retrenchment and review strategy, BSkyB is confidently predicting a near 50 per cent rise in direct-to-home satellite customers to 7 million within three years. It also expects to raise average revenues per subscriber from around £280 per year to £400 by 2005, promoting interactive television, home shopping and other services. If ONdigital's ambitions were initially more modest - 2 million subscribers to break even in five years - it was soon forced into a more daring game. That occurred when BSkyB went for broke by giving away digital set-top boxes in exchange for customers agreeing to a one-year subscription. ONdigital quickly - and expensively - followed suit. It meant that Carlton and Granada's original plan to invest about £350m in total to achieve profitability was tossed out the window. Now analysts expect that the total capital outlay will surpass £1.2bn. With both Carlton and Granada having virtually ungeared balance sheets, the near-term commitment to ONdigital is thought to be secure. It is the scale of the long-term funding, and whether it can be cut by a more measured investment programme that is under review. To many industry insiders, the current reappraisal became increasingly inevitable as ITV advertising revenue growth went into reverse. For Stuart Prebble, the chief executive of ONdigital, the challenge will be to manage subscriber growth more efficiently. After gaining over 1 million subscribers in ONdigital's first two years of operation, increasing attention is likely to turn to retaining customers. Until now the number of subscribers disconnecting from ONdigital has been minimal but that is set to change as early adopters come to the end of their one-year contract commitments. A major concern for ONdigital is the slow take-up by consumers of digital-ready televisions or IDTVs. Such TVs, which substitute a £40 plug-in smart card for a £200 set-top box, have attracted few buyers even though government policy is to switch off analogue television signals before 2010.

...

Carlton and Granada, the two companies that control ITV, are to announce that they are slashing spending on their ONdigital TV platform. ONdigital topped 1m subscribers at Christmas but has been spending more than £300m a year on acquiring new customers and holding on to existing ones. Analysts have been forecasting that total costs could hit £1.2 billion before ONdigital breaks even in 2003. One industry source said: *"The economics of the free set-top box are unsustainable."* When ONdigital announces its quarterly subscriber numbers in two weeks it is likely to trim down its subscription special offers and say it will be focusing on increasing earnings. Carlton and Granada may also trumpet the arrival of integrated digital televisions as a way of cutting costs. Providing a free set-top box currently costs the broadcasters around £180 for each new subscriber. Integrated TVs, which have a hole in the back for a smart card, will cut that cost to about £20 per subscriber. The press has been focusing on the decline in advertising sales at ITV to explain the sharp fall in Carlton and Granada's share price. But analysts now believe the cost of ONdigital has been a more serious blow. Carlton was down 7.5 at 368.5p yesterday, and Granada was off .25p at 151.75p. Originally, some of ONdigital's costs were to be covered by a flotation, but that plan was shelved last year in the face of hostile market conditions. ONdigital is a start-up and is said to be in the "land-grab" phase of

aggressive customer growth. During the same stage in the mobile phone market, rival operators competed by handing out subsidised handsets. Matthew Horsman, an analyst at Investec, said: *"ONdigital will one day turn out to be an OK investment, as not everyone wants to sign up to Sky, either because they can't install a dish, or for reasons of cost, or because they think it's vulgar. But I think ONdigital is going to have to spend a great deal to keep its subscribers above 1m."* Any cuts in investment spending could jeopardise future subscriber numbers, which at the moment are expected to reach 2.1m in two years.

... ONdigital blames government for slow switch from analogue. ONdigital chief executive Stuart Prebble yesterday delivered an attack on the BBC, ITV and the government for not doing more to encourage the take up of digital television. Mr Prebble said it was *"fairly remarkable"* that Britain had managed to get to about 7m digital homes without better support. *"Between us [ONdigital, BSkyB and the cable companies] we've done fairly well. But it hasn't been easy for any of us. After a difficult start, BBC News 24 is not a bad service. But we have to hazard a guess that not many people have gone digital in order to see it. BBC Choice and BBC Knowledge are more or less invisible, and no one believes they have attracted more than a handful of viewers to go digital,"* he told the audience at a digital broadcasting conference. *"ITV has launched ITV2. Once again, you'd have to guess that so far not many people have rushed out to buy a digital TV to see it."* But Mr Prebble was most sharply critical of the government's failure to help the public understand digital TV. At the beginning of the year Mr Prebble insisted ONdigital would reach the 2m customer mark by the end of 2002. Recent reports have been more vague, mentioning 2003-4 as the target date. Much of ONdigital's hope for growth rests on digital sets which allow viewers to simply slot a card into the back to receive the company's service via the aerial. The government has said the analogue signal will be switched off between 2006 and 2010. The British, terribly sensitive about being first *"in this digital thing"* and anxious to show the rest of the Euro market *"how it is done"* were dismayed when Italy, which has no existing DVB-T infrastructure at all yet, announced in April they would shut down all analogue TV on December 31, 2007. The Italians say it will not be a difficult thing to achieve - *"We are investing heavily in an information campaign advising people they should not continue buying analogue TV sets if they expect them to work past 2007. With six years to get that message across to consumers, how can anyone misunderstand our intentions?"* Indeed.

... THE BBC is understood to be opening talks with Granada and Carlton about helping to fund free set-top boxes as part of its strategy to increase the take-up of digital television. The two ITV companies have long been concerned that the BBC is effectively freeloading off them. They have been spending £300m a year subsidising their ONdigital platform, which has given its 1m customers free set-top boxes as an inducement to sign up. The boxes allow customers to receive BBC digital channels for free. The BBC pays a conditional access fee to BSkyB of about £10m, which Carlton and Granada are said to believe is unfair. There are hopes it could pay as much as £20m to the terrestrial platform as more people watch BBC via ONdigital than do via Sky. Carlton and Granada are expected to announce a cut in spending on ONdigital this week. Any future money from the BBC would help cover the huge costs of promoting digital TV. Granada is said to be particularly keen on the BBC paying for ONdigital access. One source said: *"This makes perfect sense for all parties. There has long been a feeling that the BBC are piggy-backing ONdigital."*

Greg Dyke, director-general of the BBC, is also said to be keen. He regards the BBC's existing digital strategy as a failure, costing millions but attracting few viewers. He has set up a special department, under Michael Starks, to focus on promoting digital television. It has a brief to work with the Government and other broadcasters to increase the take-up of digital TV. Mr Starks said it was too early to say whether the BBC would get involved with subsidising set-top boxes. Any BBC payment must be structured carefully, as it could be seen by the European Commission as an unfair subsidy. One source said: *"BSkyB are likely to make merry hell over it."*

If that does not seem like an adequate level of total confusion for the non-technical person to whom all of this *"digital business is aimed"* - there is more. The London *Financial Mail* for April 15th reports, "Subscriptions to TV Group Granada's ONdigital pay-per-view service have plunged because hundreds of thousands of homes cannot get a strong enough signal. Figures out next week will show

that the percentage of customers cancelling ONdigital, run jointly with Carlton Communications, is running at about 20%. Granada chief executive Charles Allen admits the figures are disappointing but he says the blame lies not with the quality of ONdigital's programmes but on the Government's failure to provide enough television transmitters. Allen told Financial Mail he has lobbied the Government over the signal problems but ministers have not kept their promises. He said the answer was simply to 'turn up the power' of the transmitters but getting this done is a bureaucratic nightmare with no fewer than 34 groups having to be consulted before a signal can be boosted. Thirty percent of the country cannot pickup ONdigital and executives are convinced that half of those who can receive a signal do not receive enough signal to make ONdigital perform properly. Because the (new) digital signals can upset the (existing analogue services or interfere with air traffic control, everyone with a possible interest - no matter how remote - has to be approached for a power increase and sign-off on it before the signal can be boosted. This is a 'recipe for dither and delay' says Granada. Without improving the quality of the signal, ONdigital has no chance of reaching their projected plateau of 2 million homes by the end of this year. They did claim 1 million subscribers on December 31 - their first projected plateau. But it appears churn, people who are turning their ONdigital equipment back in, may have seriously eroded that claimed reach. ONdigital has been marketed by publishing maps showing regions (by postal codes) where the service is available. In theory, people who go into a store to acquire a heavily subsidised ONdigital set-top come only from those "approved areas." In fact, many do not and of those who do, it is estimated at least 25% may live in an approved area but cannot receive an adequate signal because of local terrain, heavy trees, tall buildings or other factors totally ignored when the *'nice, neat coverage maps were created and published.'* Granada and Carlton claim Government has let them down - they were promised certain minimum coverage areas based upon Government siting of digital transmitters. Those areas have not been accomplished and people who have responded to promotions urging them to pickup an ONdigital set-top- box, living in those areas, are coming back in droves because the signal is not there for them. On December 31, ONdigital was counting all set-tops taken out of shops for home as 'sold.' On April 1st, they are admitting as many as 200,000 have been or are being returned."

... Carlton Communications Plc and Granada plc announced (April 25) proposals for a new partnership to align ITV and ONdigital - creating an integrated free-to-air, pay television and online media business. Highlights · Harnessing one of the most powerful brands in the UK, the new ITV will include ITV, ITV2, a new ITV Sport Channel to launch in August, ONdigital, which will be renamed ITV Digital and ITV.com, which launches later this year.

Aligning Carlton and Granada's ITV assets will allow more effective management and is expected to yield total cost efficiencies for the two companies together of £20m per annum in the second full year. Stuart Prebble will be appointed Chief Executive of ITV with overall responsibility for ITV free-to-air and pay channels and ITV.com. Rob Fyfe will be appointed Managing Director of ITV Digital. David Liddiment will continue to be ITV Director of Programmes and, as ITV Director of Channels, will assume wider editorial responsibility for ITV digital channels.

Charles Allen, Chairman of Granada plc, said:

"This is the most fundamental change in British broadcasting since the launch of multi-channel television. Granada and Carlton have forged a new partnership in ITV, the UK's most popular television channel, and are now bringing together the tremendous brand strength of ITV with the UK's digital terrestrial broadcasting platform." Michael Green, Chairman of Carlton Communications Plc, said: *"ITV will now leapfrog the BBC and Sky with this new partnership. A combined free-to-air and pay television audience of 50 million viewers a week offered entertainment, the Internet and e-commerce is a world first."*

Under these proposals, ITV will operate three businesses - ITV Channels, ITV Digital and ITV.com, supported by common service functions.

ITV Channels

ITV Channels will encompass ITV and ITV's digital channels. A new premium pay sports channel, ITV Sport Channel, will launch in August. It will combine ITV and ONdigital sports rights, including 330 football matches, of which more than 150 will be live. It will have UEFA Champions League, Nationwide Football League and Worthington Cup games as well as linking to 40 live Premier League

matches and ATP tennis. ITV will continue to offer the best free-to-air sport and entertainment content. ITV starts countdown to new sport channel launch in August.

(A new pay TV sports channel that will offer the very best in European club football and revolutionise domestic coverage for millions of fans was unveiled April 26 by ITV. The new ITV Sport Channel not only represents the first ever sports offering to break the Sky stranglehold on how Britons watch premium sport, it has the strength, reputation and popularity of the country's most respected sports broadcaster, ITV Sport, firmly behind it.

Launching in August, the premium channel will be available through ONdigital which is to be renamed ITV Digital. A top quality line-up including more than 150 live football matches each season will make up what is a major development in televised sport. There will be unrivalled live coverage from the world's most prestigious club competition - the UEFA Champions League, ground-breaking coverage of the Nationwide League and the excitement of The Worthington Cup. The UEFA Champions League has become the pinnacle of competitive football in Europe and will provide the cornerstone of the new channel with unrivalled coverage of live matches on Tuesdays and Wednesdays throughout the competition's 17-week format. This season's competition has provided some spectacular moments and big-time football occasions with Leeds United still on course to emulate Manchester United's winning performance in 1999. Live action from the UEFA Champions League will remain on free-to-air ITV throughout the 17 Wednesdays of the competition and the network will continue to provide highlights action on Tuesdays and Wednesdays.

The new channel will combine live football with feature-led programming to give viewers the complete UEFA Champions League picture. Alongside the UEFA Champions League coverage, the ITV Sport Channel will also launch the most comprehensive commitment to the Nationwide League yet seen on British television. With a total of 80 live matches to be screened on Thursdays and Sundays, the new channel will raise the profile and extend the experience enjoyed by millions of followers of English football's original league competition.

With a diet of live matches, extensive highlights, intelligent and informed analysis, club and player profiles and other innovative feature programming, the ITV Sport Channel will provide the depth and quality of coverage that the Nationwide League has not enjoyed before.

Among the comprehensive package of programming being developed is a Saturday evening highlights showcase dedicated to the Nationwide League's First Division. It will enable fans to have the chance to see all the goals, extended highlights and extensive analysis from that afternoon's games. The channel will also show separate in-depth highlights shows for the Second and Third Divisions. A total of 15 major Worthington Cup ties will also be shown live. It is midweek cup football played to a finish - under floodlights - and down the years has provided some great moments and matches. It guarantees European football for its winner.

Coverage of the Nationwide League and Worthington Cup will also be enjoyed by ITV's free-to-air viewers at network and regional level. Although the new channel will major on football from its birth, it also has plans to embrace some other popular domestic and global sport. World championship boxing, ATP Masters Tennis, and Champions Cup snooker are part of the debut line-up. The channel will have also at its disposal the best presentation, reporting, production and technical team in British sports television. Already providing top quality coverage on ITV, their collective talent will provide a sense of authority, style, flair and excitement for the channel.)

ITV Digital

ONdigital will be re-branded ITV Digital and become ITV's pay television platform, leveraging the strength of the ITV brand. Having achieved 1 million subscribers faster than any comparable platform, ONdigital announced today that it added a net 75,000 subscribers in the quarter to 31st March 2001, giving it a total subscriber base of 1.087 million. Its current churn rate of 22 per cent per annum is lower than all other pay television operators at an equivalent point from launch. ITV Digital's strategy is to improve consumer loyalty, increase revenue per subscriber and reduce acquisition costs. This strategy will be delivered through: Rapidly improving geographic coverage, which will reach 70 per cent of the UK within the next three months. Coverage will be further enhanced by the announcement this week that the government will facilitate improvements to the quality of digital reception by doubling the power of the signal strength, initially at 8 of the key transmitters serving many of the major urban areas; and Enhancing content with additional services, including a compelling sports offering as the launch of the ITV Sport Channel adds to the channel line-up and new pay per view and interactive services are introduced. This will enable ITV Digital to build a loyal and established

customer base as the business continues to grow towards planned break-even in 2003/4 with 1.7 million subscribers.

ITV.com

ITV.com will create a unified online home for all ITV entertainment and interactivity. It will integrate itv.co.uk, as well as Granada and Carlton's ITV online properties, such as Coronationstreet.co.uk, Emmerdale.co.uk and Crossroadshotel.co.uk. Taken together, these existing Carlton and Granada services already generate over 20 million page impressions per month and will create one of the UK's top ten entertainment sites. ITV.com will also feature online properties like Who Wants to be a Millionaire? games for solo and multiple players, national tournaments and synchronised "live" games. Who Wants to be a Millionaire? online has achieved some 45 million page impressions in the first three weeks since launch. Online events, celebrity chats, audio and video streaming, listings information, e-mail, SMS messaging, chat rooms, consumer polls and a search facility are also planned as part of ITV.com. Through an enhanced range of information, entertainment and interactive services, extensive cross promotion and with access to almost 50 million viewers, ITV.com expects to become one of the UK's overall top ten favourite sites.

...

Somewhere in the bowels of Fleetbank House, London, EC4, there is a time bomb with a very long fuse. And some would like it to explode right under BSkyB, the satellite broadcaster which, with more than 5 million digital subscribers, dominates the media landscape. Should the device fail to go off, the chances are Sky's competitors will end up on the casualty list instead. The bomb in question is an Office of Fair Trading inquiry so far four months in the making. The OFT launched the investigation just before Christmas, predicting that it would emerge in around six months' time. But none of the OFT's mandarins banked on how contaminated pig swill would end up impacting on the world of media regulation.

Now that the election has been postponed because of the foot and mouth crisis, OFT sources suggest that the potentially incendiary report won't be published until the end of June at the earliest. It is clearly received wisdom in the corridors of Fleetbank House that it's not a good idea to annoy Rupert Murdoch - whose News International effectively controls Sky through its 37.5 per cent stake - the month before an election. Especially given that Sky could end up facing a £100 million fine (10 per cent of its earnings) as a result of the investigation.

At the heart of the inquiry lies the question of whether Sky has abused a dominant market position in broadcasting. Rivals, chiefly ONdigital, the terrestrial digital television service jointly owned by Carlton and Granada, say the wholesale price it pays to carry Sky's premium channels (sports and films), is almost as high as that it charges its own subscribers. As such ONdigital faces an unpleasant choice: either it raises the prices it charges for the channels, or it takes a hit and subsidises the service. The former is practically a no brainer - consumers will simply opt to take Sky. And the latter is now unthinkable, given that ONdigital is predicted to shell out £1.2 billion by 2003 in a desperate bid to subsidise the cost of its set-top boxes - four times what it had originally predicted. A clearly frustrated Stuart Prebble, chief executive of ONdigital, summed up his company's position: *'It seems there are only two possible relationships with Sky: one is hostile; the other is servile.'*

For ONdigital - Sky's biggest customer, with a million subscribers - such a pricing policy means it loses money if subscribers take just one or two channels. It breaks even if they take three, moves to profit if they take four. When it launched, ONdigital had no idea that Sky would be so hard-nosed. *'They just didn't envisage that Sky would be so aggressive,'* one industry source said. *'Sky ate them alive.'* ONdigital also cries foul over the way Sky cross-promotes its channels. Viewers watching Sky Sports are regularly reminded they can check out the Player Cam on Sky Sports Extra - a service not available on ONdigital. And, while Sky Premier might show the latest movies for satellite viewers, it doesn't always offer the same service for terrestrial viewers. Sky's subscribers saw the blockbuster Men In Black two years before their ONdigital counterparts, for example. Then there are the exclusion clauses Sky has signed with a number of channels, blocking their availability to other broadcasters. Taking 50 per cent stakes in the likes of the History Channel, Nickelodeon and National Geographic, not to mention owning Fox Kids outright, has helped it clinch such deals. Now Adam Singer, chief executive of cable firm Telewest, has predicted that ONdigital will have to either fold or merge with another media company if it is to survive. But help can be found in strange quarters. The big pub

chains are none too happy with Sky's pricing policy, either. Only a few months ago the biggest bars were paying £380 a month for their Sky fix. Now they have to pay £880 if they want to put the super into Sunday. Industry sources say more than 20 different firms - including Bass and Whitbread, Channel 4, cable companies NTL and Telewest and telecom firm Kingston - have given evidence to the OFT. City sources say that, despite appearances, Sky, which isn't expected to turn a profit until 2003, is scared about the inquiry's possible outcome.

Observers say Sky has done a 'brilliant' job in suppressing interest in the inquiry. Sky supporters have chanted the mantra that OFT inquiries are nothing new. In addition, media sources highlight the fact that the OFT recently released Sky from two regulatory commitments - chiefly to do with the way it provides accounts - as evidence that things may be looking up for the company. And Sky also points out that the media landscape has changed dramatically in recent months. Rivals are now launching their own channels. ONdigital will have its own premium sports channel later this year, for example. Telewest, meanwhile, produces hundreds of hours of its own content through Flextech, the company with which it merged two years ago. New technologies such as ADSL - phone lines carrying video signals - are now on the market. Consolidation of the cable industry from 40 players to two means Sky faces powerful rivals. So, the argument runs, why regulate the price it charges for content? But, significantly, the inquiry is the first launched under new OFT boss John Vickers. Media observers say Vickers would not have contemplated such a high-profile investigation unless he was sure there was a case to be answered. And, while OFT inquiries into Sky may be nothing new, this is the first to be launched under the new Competition Act, which gives investigators far greater powers than they wielded under the old Fair Trading Act. As well as a fine and the possible imposition of a new pricing structure, the inquiry could ultimately force Sky to adopt a Microsoft style break-up, separating its distribution and content divisions. This option does not look likely, however. 'I don't think anybody believes the OFT will make them divide into two parts. It would be so complicated,' one media source said. Nevertheless, the City is worrying as the inquiry draws to a close. Analysts at Morgan Stanley Dean Witter said in a note this month that the inquiry 'could weigh on stock'.

But bad news for BSkyB would be good news for competitors. MSDW's media team stated: 'We feel reduced rates in wholesale could benefit the entire pay-TV industry and, to a lesser degree, BSkyB as higher volume and greater penetration would lead to higher incremental revenues.' Vickers will now be considering such a move. But not before an election, obviously.

(New Zealand) Sky Network NZ continues testing of their OpenTV platform with suggestions there will be downloads transferring it to at least some segment of their satellite base - shortly. OpenTV will allow Sky to introduce e-mail, live betting on TAB events from home, a sophisticated programme guide and eventually access to a "walled garden" segment of Internet. European experience with OpenTV suggests consumers are not "wild" about the option of using their TV set as a quasi-computer, and in fact having it available may make very little if any measureable difference in subscriber growth or subscriber retention. BSkyB has made money with its on-line betting while other aspects of OpenTV have not yet been profitable. Still, it is the next logical step for Sky and they can be pardoned for slowing down its introduction because for the foreseeable future it is unlikely to contribute to bottom line profits or cash flow.

Would-be competitor TelstraSaturn + TVNZ is having its own launch problems and delays. At this time, the plan is as follows: (1) TelstraSaturn will launch a 24 channel platform, using Irdeto conditional access of which *as many as* 7 or 8 will be "FTA." No formal announcements yet on which "7 or 8" but internally at TS, they talk openly of TVOne, TV2, TV3, TV4, Prime "and perhaps TAB" at the start. The balance of the package will be pay-to-see programming. (2) Separate from the TS launch, using one half of one transponder exclusively, TVNZ will transmit TVOne, TV2, and they "hope" TV3, TV4, Prime as a minimum. In effect, if there will in fact be "as many as 8" FTA service channels, the same 8 will appear twice on two transponders - one time for TelstraSaturn customers and another time for TVNZ's "free to view" package. The TelstraSaturn package still plans to utilise the Pace model DGT400 set-top boxes which Saturn parent Austar has stored in Australian warehouses. Here's a new twist: Engineers in Australia have been "somewhat successful" in modifying the DGT400 so that it has an "add-on" telephone line modem. What's that all about?

TVNZ requires that its "free to view" (notice the clever change from "air" to "view") bouquet of the commercial networks include the capability for accessing Internet. This requires the set-top box to have two-way capability - it receives the incoming signal via the satellite dish, but creates an outgoing signal through the telephone line at the home. Thus the need for a modem - a device that allows a set-top box to "plug into the phone line" and once connected "talk" to Internet connected computers (accessing web sites, sending e-mail et al). Unfortunately, modem equipped set-top boxes are relatively new - much newer than the Pace DGT400 set top models TS wishes to employ in New Zealand. So it came down to two versions of the same thing: (1) The TelstraSaturn format which dismissed modem connected ("OpenTV") functions as too expensive, and, (2) the TVNZ demand that the set-top boxes be modem equipped. This in turn led to the decision that the "free to view" services be transmitted two times - once in the Irdeto format that does not allow OpenTV and again the Irdeto format that does allow OpenTV.

Which led to a doubling or parallel efforts throughout the project. For example, TelstraSaturn will employ one or more "national installation firms" to handle their customer installs. The four firms under consideration are - (1) Downer Engineering (who already do TelstraSaturn cable TV installs), (2) GDC, (3) Hills Industries, (4) Strongline. Internally at TS, they have wall charts projecting "50,000 installs by the end of the year" with "peak rates of between 450 and 800 per day." They still have a July 1 start date planned. TVNZ does not plan to start its own marketing (for the second "free to view" package) until October 1 - and that date could slip. TVNZ is still to formally announce which modern modem-equipped set-top box they have chosen for their service. Still ahead for TVNZ - decisions about who will do the installation, even how the set-top boxes will be distributed in the field. The business model that most satellite pay-TV firms use is as follows: They market (advertise, promote) on a national level, maintain a relatively small number of regional offices (which double as equipment depots) and engage freelance, paid-by-the-job installers. Customers use toll free numbers to enquire and order the service, instructions are sent to the regional office where the installer picks up a set of equipment and a client name/address. When the installation is complete, the installer calls a central authorisation centre, reports the smart card and other details and the receiver is "turned on" over the satellite. If the payment is by something other than credit card (which can be handled over the telephone in the initial contact between client and service provider), the installer is responsible for collecting payment. Which then must go back to the regional office with suitable paperwork, and finally to the national office.

TelstraSaturn knows this business from their Australian experience; somehow TVNZ, standing slightly outside the mainstream with their expensive modem-equipped box, must be integrated into the system. None of that has been done, yet.

Returning to the "partial success" reported by Australian engineers working for TelstraSaturn. If indeed it is possible for the 5 year old Pace DGT400s to be retrofitted with a modem, then a major cause of disagreement between TVNZ and TelstraSaturn is resolved. The entire premise for TVNZ creating its own "bouquet of free to views within the larger TS bouquet" is based upon a demand that set-top boxes be modem capable. TVNZ has gone into the set-top box marketplace primarily to source a box that will do this. TelstraSaturn, using older Pace units, refuses to employ the current generation set-tops because of cost. They can place a DGT400 in a home for as little as A\$50 for the set-top; a current generation set-top would cost them no less than A\$375. If the DGT400 can be retrofitted with a modem, the need for TVNZ to have a separate, more expensive, set-top box evaporates.

Nobody at TelstraSaturn will "verify" for CTD the status of the modem-add-on project. We talked with set-top engineers regarding this project and learned the following: (1) It is possible to do this, (2) The cost of adding a modem internally to the PACE DGT400 could be as little as A\$20 in quantity, (3) The amount of space available inside the box (one or two ICs plus supporting parts on a relatively small circuit board) is marginal but "doable"; (4) Adding two ICs for the modem function would add nearly 3 watts of additional power use. That's not important - but the resulting 9% increase in temperature of the set-top box resulting from a pair of ICs added is a concern. Heat has always been a problem for DGT400s - they must have air circulating around them freely to dissipate the heat generated - or the box quits working until it cools back down. Installers of DGT400s will have to be far more cautious than those installing set-tops for Sky. (5) A set-top box without a modem falls into a

category of home electronic equipment that includes TV sets and VCRs, whereas, a set-top box with a modem becomes a "computer category" device.

Differing "safety" and "approval" routes exist for the two categories. Adding a modem, turning the DGT400 into a "computer device," brings with it new technical restrictions for the installation. For example, a satellite installation without a modem can place an electrical voltage on the case of the set-top and remain perfectly legal (see SatFACTS April 15th, page 12). But with a modem, where the case of the set-top is now connected to the telephone system's massive "grounding" network, this is no longer true.

TelstraSaturn has reached one "policy decision" regarding the installation of set-top boxes: All installations will include a telephone line connection (extension, as required) to the vicinity of the set-top box (TV set). That means contract installers, like their Sky counterparts, will be "tapping into" each home's telephone circuit, and running an extension line terminated with a plug-in socket nearby to the set-top location. This will be done even if DGT400s without modems are installed. Why? you ask. Each time an installer makes a trip to a home costs the company between \$35 and \$40 - just for the trip. So in the first visit, to install the original dish, set-top and get the system working, they will run an extension phone line so it will be in place for future - if not present - use.

Sky was lax about insisting each satellite dish installed have a telephone jack, initially. And they paid a price for that - spending the last six months of year 2000 sending installers back to visit home a second time (at a cost to Sky) to update the installation with a telephone line connection. In fact, Sky has directed installers, *"If you cannot install a telephone jack, walk away from the job. We don't want that home as a customer!"*

For TelstraSaturn to hit 50,000 subscribers by December 31 (pick a year - any year!) some pretty amazing things must happen. They might do it if they gave away the installation and gave away say 3 to 6 months of service as well. Set a clearly defined time window, area by area and promote the hell out of the *"free is free"* package. To keep the installs manageable, they would start in the south of South Island and work their way north in steps, tying local promotion to product and installer availability each step of the way. This is not as fanciful as you might suppose - in fact it has been a contender for launching TelstraSaturn's service. In that process, there would be some entanglements with Sky.

Sky's 230,000 digital satellite customers are out of a universe which has been calculated to total 280,000 homes with dish antenna systems. In other words, churn (people who take a service for a period of time, then drop it). Not every home you spot with the characteristic 60/72 cm offset dish is actually paying Sky for service at this time. When a home terminates service, Sky dispatches an installer (that goes another \$35-\$40) to pickup the expensive set-top box. The antenna, LNBf, cabling - it all stays behind, along with the telephone modem socket installed at some expense by Sky. In theory, these belong to Sky - the fine print on customer contracts make that very plain. But, to demount the dish, take out the cable, deinstall the modem line and reclaim the parts would actually cost more in installer time than the parts are worth. So Sky leaves them behind- in place should the home decide to return to Sky. Now, suppose the home falls for the TelstraSaturn advertising barrage? Will Sky allow TelstraSaturn to use these abandoned parts? Are they in fact - in the legal sense - abandoned? How long must Sky leave them at a home, uncollected, before "ownership" passes to the home owner?

The amusing angle here is Sky's subsidised cover of the original labour and cost of antenna parts may ultimately end up being a subsidy that passes to competitor TelstraSaturn! The fun in New Zealand is just beginning.

(United States) This report summarises the technical findings of the VSB Performance ad hoc group, created within the ATSC Task Force on RF System Performance to study RF transmission performance issues concerning equipment complying with the ATSC A/53 standard. The sections that follow report the group's findings in the following areas: introduction and summary of the controversy that led to the formation of the ATSC Task Force on RF System Performance (Section 1); summary of the original transmission system requirements, industry interpretations of those requirements and current broadcasters requirements (Section 2); assessment of DTV RF propagation channels (Section 3); consumer DTV antennas and ease of reception issues (Section 4); DTV link budgets and sources of

degradation (Section 5); analysis of 8-VSB system performance data (Section 6) and potential future improvements (Section 7). The conclusions of the ad hoc group are presented in Section 8 and the ad hoc group's recommendations to the ATSC are presented in Section 9. The ad hoc group finds that the A/53 DTV transmission system and newer generation 8-VSB receivers largely meet the goals of outdoor reception by fixed receivers with 30 foot antenna height, in accordance with the FCC DTV planning factors. The group finds evidence that the goal of DTV replication of NTSC service where NTSC video quality is of ITU-R grade 3 or higher is largely met. The ad hoc group finds that indoor reception of DTV with set-top antennas may be a service mode available only to a minority of viewers in some television markets, primarily due to insufficient RF field strength. Further advances in DTV receiver design, particularly in reducing the "multipath C/N penalty," are expected to increase the percentages of outdoor and indoor sites that successfully receive DTV, but the ad hoc group finds that expectations of widespread indoor reception are inconsistent with the DTV planning factors and link budget variables. The ad hoc group further concludes that reliable DTV service to receivers using fixed indoor antennas will be available over a wider area than to portable indoor receivers utilising self-contained antennas. The group finds that reliable DTV service to pedestrian and mobile receivers poses a unique set of challenges that will be difficult to overcome in a single transmitter environment. The ad hoc group recognises that many aspects of the received signal quality are independent of the type of modulation employed. Most prominent of these are the antenna and RF propagation channel characteristics, which degrade RF signals in any transmission system. The importance of DTV link budgets and variables affecting link margin cannot be underestimated. Broadcasters control some variables that affect link margin, such as transmitter antenna height and transmitter power up to the authorised maxima. Manufacturers control other variables, including transmitter linearity, receiver noise figure, receiver selectivity and dynamic range, and 8-VSB demodulation and equalisation design choices. Consumers have, however, enormous influence on link margin through their selections of antenna type, mounting location and height, and antenna orientation. The ad hoc group understands that even transmitter and receiver hardware that is theoretically perfect and lossless in every respect will still be subject to transmission errors induced by thermal noise, and that a minimum carrier-to-noise (C/N) ratio necessary to achieve a suitably low bit error rate for DTV service must be delivered to the receiver. Clearly there will be some percentage of potential viewers who are unable to install an antenna and receiving system capable of providing the minimum C/N to overcome the "digital cliff" -- for example, those consumers who cannot achieve reliable indoor reception and are unable to install a rooftop antenna. The ad hoc group is unable to estimate how many potential viewers this may represent, nor how much different that number would be using theoretically perfect lossless equipment versus existing consumer equipment. It is evident to the ad hoc group that to maximise the number of consumers capable of receiving DTV, the primary means by which link margin can be increased are: antenna and receiver improvements; increasing RF field strength throughout a DTV market -- either by using a more powerful single transmitter or by supplementing the high power transmitter with on-channel repeaters; and finally, by selecting a more favourable "digital cliff." This last method implies acceptance of a lower DTV transmission data rate, regardless of the modulation format used. The principal recommendation of the VSB Performance ad hoc group to the RF Task Force is that the ATSC investigate enhancements to the DTV transmission system. The consensus of the ad hoc group is that enhancements to the existing A/53 standard will more rapidly meet more of the broadcasters' requirements and provide more ubiquitous DTV services for American consumers than mere reliance on technological innovation of receivers based upon the existing A/53 standard. The ad hoc group commends the ATSC Executive Committee for its prompt action in assigning this work to the T3/S9 specialist group. It is the expectation of the ad hoc group that the trade-offs of data rate vs. robustness for different types of DTV service will be revealed during the course of the T3/S9 activity. The ad hoc group also recognises the need for further testing and studies, and recommends development of criteria for definition, prediction and measurement of different levels of DTV service in various modes of reception.

...

NTSC/ATSC receivers - Peter Putman reports that something (maybe tropospheric ducting) increased his distant signal levels tremendously, and he offered spectrum-analyzer photos to prove it. But, even with this high signal strength, his NTSC/ATSC (Advanced Television Systems Committee)

receiver would not lock to a DTV signal on any channel where it could detect an analogue signal; however, his DTV-only receiver worked fine.

FCC study turns DTV inside out. A Federal Communications Commission study, which found that the United States' 8VSB digital TV system is working far better than indicated by recent industry testing, is seriously flawed, broadcast industry sources charge. One of the key findings in the FCC study says the FCC has succeeded in getting 8VSB DTV signals to indoor antennas at 85 percent of test sites in the Washington area. That would appear to mark a vast improvement in the technology since the broadcast industry wrapped up its tests of the technology in the same area late last year. Then the broadcasters were unable to get 8VSB signals indoors much more than 30 percent of the time. But in a major hitch, an FCC official then revealed that the agency tested its indoor antennas outdoors, a factor that was at best ambiguous in the FCC's report. The industry tested indoor antennas indoors, where industry officials said penetration through walls, roofs and siding makes reception more problematic-and realistic. In another significant procedural difference, an FCC official said the agency moved its test truck up to 50 feet from targeted test sites to escape so-called "nulls" -areas where a DTV signal doesn't penetrate. The industry, according to a source close to the tests, parked its truck at randomly selected test sites and tested regardless. A source close to the industry tests-which were overseen by the National Association of Broadcasters and Association for Maximum Service Television-said the FCC's procedures undermined its test's scientific validity. *"Our testing involved a lot more sites, a lot more trucks and a very rigorous testing protocol,"* the source said. *"They [the FCC] moved around until they got a signal."* Said Mark Hyman, vice president or corporate relations at Sinclair Broadcast Group, which has been a longtime critic of 8VSB: *"If you're not going to conduct honest tests, what's the point?"* But Michael Petricone, vice president of technology policy for the Consumer Electronics Association, a major 8VSB booster, said the FCC's tests proved what his organisation has been saying all along. *"With every generation, the performance increases and the costs go down,"* he said. *"This is typical of every consumer electronics product, and it's true for DTV."* In an interview last week, Bruce Franca, acting chief of the FCC's Office of Engineering and Technology, conceded that it is harder to get a TV signal indoors. But Mr. Franca said the FCC stayed outdoors because it's hard to persuade people to let you inside their homes for testing and there's no standard for determining how to test inside. He also said he didn't believe that leaving the FCC truck in "nulls" would have "changed the results very much." *"Lots of times we couldn't move the truck very much because of fences or other obstructions or that was the only parking place,"* said Mr. Franca, who said the agency is planning to continue its testing regimen. Sinclair's Mr. Hyman said, however, that moving the truck obviously undermined the FCC study. *"The equivalent would be instead of putting the TV in your living room, you put it in your hall closet,"* Mr. Hyman said. FCC Chairman Michael Powell recently made clear that he doubts the industry's findings. *"There are lots of allegations that parts of the [NAB/MSTV] test are flawed,"* said Mr. Powell, explaining to reporters why he doesn't believe the NAB study would justify a requirement that DTV sets be labelled to warn consumers the sets might not receive over-the-air signals. *"I do not believe that the tests conducted are sufficiently solid to compel that kind of warning, which would have a very detrimental effect, as we know, on the continued sales of televisions,"* he added. The FCC study, which was labelled an interim report, also said the agency found that 8VSB outperformed existing UHF analogue (NTSC) service. Using a 30-foot outdoor antenna, the FCC said only 67 percent of sites received an acceptable NTSC signal, while 99 percent of the sites received an unimpaired DTV signal. Using an indoor antenna on a 7-foot-tall tripod, the FCC said an acceptable NTSC picture was received at only 27 percent of sites, while 85 percent received an unimpaired DTV picture.

The length and depth of the Internet downturn

NBC is shutting down its loss-ridden Internet subsidiary, acknowledging that any hopes of it becoming profitable had vaporised along with the online advertising market. Many of the 300 jobs there will be eliminated as the unit's assets are integrated into NBC. The announcement marks the latest move by a major media company to drastically scale back its Internet ambitions. The Walt Disney Co. and News Corp. have also absorbed their online units, and other media players have pulled plans to sell shares in their online operations to the public. Senior executives at NBC and NBC Internet told The Associated Press that they had been weighing alternatives for the subsidiary since the

beginning of the year, including a sale, a merger with another company, or liquidation. *"The sharp declines in the Internet advertising market convinced us that it didn't make sense to pursue a portal strategy,"* NBC's chief financial officer Mark Begor said. *"We wanted to find a way to maximise shareholder value and wind down the business in the best way possible."* Like many companies that rely on online advertising, NBC Internet has been losing a staggering amount of money. In the three-month period ending in December, it posted a net loss of \$245 million on revenues of \$31 million. Excluding asset write-downs or restructuring charges, it would have lost \$47 million for the quarter. NBC, a subsidiary of General Electric Co., will pay \$2.19 in cash for each publicly held share of NBC Internet, a premium of 46 percent over the closing share price of \$1.50. NBC currently owns 39 percent of the company, which was formed in the fall of 1999 in a multipart deal with CNET and other Internet companies. Shares of NBC Internet jumped 64 cents to \$2.14 in early trading on the Nasdaq Stock Market. Shares of NBC's parent company GE rose \$1.19 to \$42.36 on the New York Stock Exchange. NBC Internet's assets will be absorbed back into NBC, but it's not yet clear how they will be used. The NBC.com Web site will fall under the jurisdiction of Scott Sassa, the chief of NBC's West Coast operations. Still to be determined are the fate of some dozen companies, such as Flyswat, GlobalBrain or AllBusiness, that NBC Internet acquired for stock over the course of a \$500 million buying binge. *"There's no question that we'll dramatically reduce the scope of the operations and sell some assets,"* said NBC Internet's chief executive Will Lansing. *"But first we'll see how it fits into the NBC strategy."* The purchase will cost NBC about \$85 million in cash and places a value of about \$150 million on the Internet subsidiary. That's a far cry from the roughly \$5.7 billion value that investors assigned to NBC Internet back in January 2000, when its shares closed at a high of just above \$100. NBC has been trying to turn around its Internet subsidiary for some time. Last year it installed Lansing, a former GE executive, to implement fiscal discipline and revamp the company's blurred marketing strategy, which employed a number of different brands and Web sites such as Snap and Xoom. NBC Internet has been trimming its payrolls over the past nine months from a high of 850 last August to 300 now. Begor said NBC would "significantly reduce" the head count as NBC Internet is integrated back into the network, but he declined to be more specific. Despite backing from the NBC network, including \$220 million in advertising credits, NBC Internet had always struggled and didn't get to share the success of NBC's strong cable brands MSNBC and CNBC. MSNBC.com remains one of the top news sites on the Internet, but that site, like the cable channel it is associated with, is a 50-50 joint venture between NBC and Microsoft and was never part of NBC Internet. Likewise the Web site for CNBC, which has been a runaway hit on cable with its financial coverage, had only a minor participation in NBC Internet. Lansing will leave the company after seeing it through a transition period. The deal is expected to close in the summer.

Web Radio Hits Snag: The Internet continues to be dogged by old-economy issues. Bowing to pressure from advertisers, radio giant Clear Channel Communications, which owns more than 1,200 radio stations nationwide and eight in Washington, has told its affiliates to stop broadcasting on the Internet. Stations owned by other chains -- Bonneville, ABC Radio and Radio One -- have followed suit, or say that's their plan. Last fall, advertising agencies signed a new contract with AFTRA, the union that represents actors who voice radio commercials. The contract pays the actors 300 percent of their normal fee if radio stations play their ads on the Internet as well as on the radio. Advertising trade groups sent advertisers a letter last month reminding them of the higher fees. Faced with the increased costs, the advertisers asked Clear Channel to stop playing made-for-radio commercials over the Internet. On Monday, Clear Channel began pulling the plug on Internet broadcasts of stations including sports-talk WTEM (980 AM), soft rock WASH (97.1), country WMZQ (98.7) and new "Dynamite Talk" WTNT (570 AM). The conflict centres on "streaming," a process in which a radio station takes its over-the-air signal and simultaneously broadcasts it on a Web site, allowing listeners at computers anywhere in the world to tune in. Streaming became a "killer application" a couple of years ago, as Web companies promised global audiences and markets to local radio stations. According to Arbitron research, only 7.3 percent of the radio audience regularly listens on the Internet, though that figure is up from 5 percent a year ago. Washington stations Smooth Jazz 105.9, Mix 107.3 and WMAL (630 AM) -- all owned by ABC Radio -- are frequently among the nation's most popular, according to MeasureCast, an Internet-monitoring firm. It boils down to this: Actors don't want their services "given away" on the Internet, says AFTRA spokesman Dick Moore. And

radio companies don't want their advertising clients "to be liable for an extra talent payment," says Kevin Mayer, chairman of Clear Channel's Internet group. Clear Channel and other radio companies are scrambling for technology that would allow them to selectively mute commercials -- allowing them to be heard over the air but not on the Internet. When will the Internet broadcasts resume? *"I wish I could tell you when,"* Mayer says. Some stations, such as Bonneville-owned WTOP (1500 AM/107.7 FM), have agreements with AFTRA that allow Internet broadcast of commercials at no extra cost. Those stations are continuing their Web broadcasts. This is the second recent blow to Internet radio: In December, the US Copyright Office ruled that stations that stream music over the Internet have to pay double royalties for each song they play -- once for playing it on the radio, once for streaming it on the Internet. The radio industry is appealing the ruling.

...

VC-backed IPOs Plunge 90 Percent. Venture capital (VC) is dead. That really didn't come as news to any Internet service providers (ISPs) at the recent ISPCON trade show in Boston. VC-backed initial public offerings (IPOs) dropped almost 90 percent to \$930 million in the first three months of this year, compared to the \$8.5 billion venture capitalists were willing to put up in the first three months of 2000, according to the National Venture Capital Association. Mark Evans, a partner at Great Hill Partners in Boston, paints a pallid, bleak, lifeless future for funding at ISPs, data local service providers and competitive local service providers. Even funding for wireless is questionable, he says.

New technology likely to affect you

A revolutionary display technology finally promises to make high-resolution, widescreen televisions more affordable. The display, developed at Philips's research lab in Eindhoven, the Netherlands, uses a rotating prism to create a large, full-colour image from a single, cheap liquid-crystal display chip. The new screen costs about half as much as a conventional LCD or plasma screen, and consumes much less power than a bulky cathode-ray tube. Display designers have to find their way through a maze of compromises. The size of CRT screens is limited by the weight of the glass needed to make sure that the evacuated tube doesn't implode under atmospheric pressure, and its electron guns waste energy as heat (Coop's note: Few realise a 20" CRT has more than 5 tons of atmospheric pressure on it to implode/explode. It is something of an accolade that we don't have picture tubes creating havoc on a daily basis.). But making large LCD panels is tricky because a single faulty cell creates a permanent blip on the screen. Plasma panel TVs are bulky, gobble power and cost over \$10,000. One way around these problems has been to use a back-projection TV that beams pictures onto a translucent screen. In some projectors, red, green and blue light passes through separate small LCD panels, which act as "light valves". These three images are projected onto the screen, where they are superimposed. But it's difficult to keep the colours perfectly aligned, and you have to pay for three LCDs. In addition, the layer of transistors which control the LCD's cells block some of the light, reducing brightness. Philips's answer is to use a new kind of LCD panel made by depositing a liquid-crystal array directly onto a transparent silicon chip. It places a transparent electrode sheet on top of the LCD and a reflective layer underneath. Light shines through the top sheet and then through the LCD, before being reflected by the backing layer into a projection lens system. The projected image is very bright because there are no transistors to obstruct the light. The resolution of Philips's "liquid crystal on silicon" (LCOS) panel is high because the LCD cells can be very small - just 2 micrometres apart. To cut the cost of flat-screen/widescreen TV - and its complexity - the researchers have devised a clever way to squeeze full-colour video from a single LCOS chip. White light from an arc lamp is split into red, green and blue beams, which pass through a rapidly rotating prism. This continuously scrolls red, green and blue horizontal strips of light down the LCOS panel, so the cells in the LCOS panel reflect the three colours in sequence. The video signal is split into red, green and blue frames and fed to the panel in synchrony with the corresponding light beams. So when the LCD cells are bathed in red light they display only the red content of the picture, when bathed in blue light they display only the blue content, and so on. The prism scrolls at 200 hertz - fast enough to fool the eye into seeing full colour without flicker. Project leader Ad de Vaan will demonstrate the new screen at the Society for Information Display annual conference in San Jose, California.

...

Experiments on a newly created composite material have shown that it bends microwaves passing through it in a direction that seems to defy the laws of physics, in a discovery that could help in making more advanced lenses and antennas. The composite, made of fibreglass and copper, caused microwaves shot through it to bend in an opposite direction than the laws of physics predict, making it the first material to have a "negative index of refraction," physicists said in a study appearing in the journal *Science*. Electromagnetic radiation -- such as light and microwaves -- passing through ordinary materials is deflected in the same direction, giving those materials a "positive index of refraction," they said. An example is the way light bends when it passes from air to water. The composite could be useful in developing better antennas and other technology for the cellular communications industry, said physicist Sheldon Schultz, who created the material along with colleagues David Smith and Richard Shelby at the University of California at San Diego. Although the composite cannot focus visible light, Schultz said he hopes that obstacle can be overcome in the future. Physicist John Pendry of London's Imperial College has said that a material with a "negative refraction" would make possible the construction of a lens capable of focusing light to limits not currently achievable.

And the 'lighter side' of transition

Mexican telecaster TV Azteca is preparing its own version of the Canadian Internet news program NakedNews, in which women newscasters take off pieces of clothing as they announce news items during the broadcast. The more than six million monthly hits that the Canadian site has received during its year in business have prompted the Mexican network to launch its own television version of the newscast. TV Azteca producer Edgar Zapata said he is already interviewing women for the part, although he has yet to decide whether they will strip completely, as they do in the Canadian show, or if they will remain in a bikini or underwear. *"Although nothing has been decided nor a date yet been set, the project, which has been in the works for a while, is moving ahead,"* Zapata said. *"It will be something innovative in Mexico."* NakedNews.com was first a hit in Canada and then around the world when its daily news program started showing anchorwomen stripping as they offered the latest information on national, international, sports and financial events. It recently added a newscast featuring a male anchor. The unusual news site attracts more people than CNN and gets 20 times more hits than the Canadian Broadcasting Corporation web page. The selection process for anchorwomen *"was a simple casting, there was nothing perverse nor complicated about it,"* Zapata said. *"At least we will try to make it the best we can. Things do not happen so quickly and especially with something this sensitive."* Zapata said that such a show will inevitably attract criticism from all of society, and that is why it needs to be *"a very professional job, done carefully and nothing vulgar. It will not be like the original; more attention will go into it because (broadcast) television reaches every family, we will pay more attention to details,"* he said.

...

BSkyB Sports has unveiled Sky Scope - a brand new innovation to analyse live cricket coverage. Sky Scope is to be featured for the first time on British television during the live Derbyshire vs. Pakistan Vodafone County Challenge match on Tuesday 8 May, Sky Sports 1. Sky Scope uses the latest missile-tracking technology to measure the exact flight path of a cricket ball and was developed in conjunction with DERA (Defence Evaluation and Research Agency). DERA will shortly be known as QinetiQ and is one of Europe's leading science and technology organisations. By studying the ball's trajectory before it hits the batsman's pads, Sky Scope will be able to accurately predict whether it would have hit the stumps, giving viewers the answer to LBW calls. As well as analysing LBW decisions, the system of six specialist cameras positioned around the ground will also give viewers a whole host of other useful statistics on the ball, measuring:

a.. Line and Length - exactly where the bowler is pitching, giving the facility to analyse where perhaps he should have bowled.

b.. Spin/Seam - how much the ball deviated from its course as a result of spin/seam. Commentators often mention how far the bowler has moved the ball, we can now tell viewers precisely.

c.. Pitch - exactly where the ball was originally pitched. This information, plotted during a bowlers over/spell will show how accurately he is bowling or how his tactics have changed.

Sky Scope is a state of the art computer system. The main computer triggers the cameras when the ball leaves the bowler's hand and three video image streams are recorded. The computers then identify

the cricket ball by filtering out any other "clutter" in the picture. Finally, the three images are combined to form a three-dimensional picture to accurately depict the true flight of the ball and make a prediction of where the ball would have gone had the bat or pad not intercepted it. Sky Sports Executive Producer, Barney Francis said, *"Sky Scope will be invaluable - for us and our viewers. LBW decisions are always controversial but we can now use this system to show whether the ball would have hit the stumps. The more we use Sky Scope, the more it will develop, with a range of graphics and statistics that show a bowler's accuracy and the movement he gets from the ball."*

TECHNOLOGY BYTES

Satellite TV & Radio

Probably not in writing. Optus for their Aurora program has maintained from the outset that smart cards which consumers pay up to A\$105 to acquire remain the "property" of Optus. Now there is a change in "policy" because of prompting from the ACCC asking questions Optus would prefer not to answer. The new corporate line is as follows: "We charge a fee for the set-up and administration of that particular card on behalf of a (client) user. The card itself is owned by the customer but the intellectual property rights - the material contained inside of the card - belongs to Optus." Previously, Optus maintained they owned the cards but could not figure out how to explain A\$105 charge per card. Another interesting wrinkle based upon this admission. Someone who is a subscriber to (for example) HTN - Health Television Network, tiring of HTN service, is now entitled to contact Aurora, return the card and Optus is required to erase the HTN authorisation codes in the card, replacing these with whatever codes the user is entitled to and requests (such as ABC, SBS and commercial TV). With no new fees.

Latest Aurora software sent via satellite to receivers has rendered inoperative older style Pace DGT400 receivers which for a period of time would at least access a limited number of TV services when provided with a suitable smart card. Later when full TV services disappeared, DGT400s continued to play radio services and audio of some TV services. Now that has ceased as well.

Aurora service subtitles (captioning of news and other programming) continues to not work properly. Two different captioning formats have been in trial; a word by word caption used primarily for live news broadcasts and a two line system in which lines appear and disappear in two line shots as the language dictates. Neither performs properly, making something of a mockery of Optus contentions concerning future advanced uses of their Irdeto + OpenTV chosen format.

Health Television Network (HTN) Aurora class service has been running many of their "doctors only" programmes free to view for Aurora smart card holders. Programmes seem to be "sponsored" by computer software firm that is attempting to create market for its services with doctor's offices and clinics.

When Turner announced cancellation of TCM (movie) segment of TCM/Cartoons effective 1 July, they also hinted there would be a replacement. It turns out to be a simple money grasping move. Cartoons will shift from PAS-2 to AsiaSat 3 on 1 July and go to 24 hours. Simultaneously, a 24 hour TCM movie service will launch also on AsiaSat 3. Cable systems and others who previously paid for and received the combination package (TCM/Cartoons) must now decide which "half" of the package they wish to continue receiving (same price they now pay), or, if they wish both halves, the fee doubles from the present fee. Not related: April 26, 17:30 GMT, Turner's CNNI service on PAS-8 shut down for approximately 5 minutes time to allow equipment upgrading at USA linker Globecast.

TARBS, Australian based ethnic service broadcaster with plans to become world force (see p. 2 here) has introduced third PAS-8 Ku band transponder, 12.326 Hz. Coupled with transponder space on AsiaSat 2 (C-band bringing middle eastern TV and radio to Australia) and Thaicom (C-band for transport of European signals to Australia), TARBS now has 5 "medium to long term lease" transponders at an estimated annual cost in excess of US\$20 million. Against a subscriber base in Australia of only 25,000, it has to be an act of faith at this point (*"build it and they will come"*).

Nokia. Highly desired but unwise investments in Asia and the Pacific because of a complete lack of interest to support the product from either the factory or European distributors. Latest new satellite products: 9450 S - free to air MPEG-2 receiver; 9650 S - CI for two unrelated smart cards; 9800 S - latest intended for Russian (CIS) market with Cyrillic fonts; 9902 S - hard disk recorder and satellite receiver combined. Details from www.jacobsons.nu

TelstraSaturn contact reported by would-be installers who hope to be doing satellite installations for them: David Visser at 04 922 8400.

Digital Television & Radio

Motorola and Thomson, two major names in TV set production, have advised US FCC that if there were a requirement that all TV sets be capable of receiving ATSC DTV, present receiver costs (not retail pricing) would increase by US\$200. However, that number would drop to US\$50 in 5 years time given the efficiencies of scale.

Thinking of building a DVB-T set-top box? Tuner builder Alps and DVT processing chip maker NxtWave have created a single unit (TDMU7) that tunes and then demodulates (turns into video and audio) 8VSB digital TV signals - price at OEM level, US\$100. Not to be outdone - Mitel is offering a COFDM demodulator chip for US\$10.99 in quantity - whereas the equivalent 8VSB chip is US\$20 in quantity.

Australia's plan to create an entirely new layer of broadcasters called "Datacasters" may be in trouble. First there was no interest, then Telstra and NTL said they were interested and now Telstra has pulled out.

British trade magazine Television in two-part series (February and April) reveals the truth about the actual performance of the British DVB-T service. Practitioners have touted the digital terrestrial as essentially being "trouble free" and "reliable" when in fact, according to Television, it is neither. Very significant transmission signal level changes occur over very short distances making reception a patch work quilt where houses in all directions receive it OK while "yours does not." Solutions are in hand but at considerable expense to viewers - often spending several hundred pounds on an aerial system to allow the "free" ONdigital set-top box to perform as advertised.

International Telecommunications Union (ITU) Study Group 6 has adopted 1280 x 720 image format for production and international programme exchange. Next step - out to government administrations for approval. Unfortunately, at this stage it only applies to 60/30 Hz TV.

British study. Question: "If you absolutely had to invest in a digital TV set, because analogue TV was being switched off, what is the maximum you would be willing to pay?" Answer - 25 pounds.

Terrestrial Broadcasting

Australian DVB-T, while not attracting significant "early adopters," continues to attract interest from hopeful set-top box makers. Latest in the fray - TEAC, a Japanese + European firm with a modest line of television sets and a larger line of middle range consumer home electronics. TEAC hit the ground running the week of April 23 with a reported 2,000 DVB-T boxes built to Australia's unique "standards" clearing customs as we report this. Rumour - another 25,000 are on the way - ten times as many as have been sold to date. The TEAC box is reported by early testers to be "faster, quicker, more seamless" than the first-arrival Thomson set-top box. It also offers S-VHS output along with composite - a significant advantage for homes or commercial establishments using 16:9 monitor receivers also equipped with an S-VHS input (thereby eliminating the degrading effects of remodulating the digital terrestrial signal back to UHF for presentation to the selected TV set). No formal price announced for the TEAC as we go to press - but suggestions, "it will be significantly sub-\$500 to dealers". Thomson boxes have been carrying a list price of A\$699, actual dealer price unknown but unlikely to be sub-\$500. A third box from Skyvision Australia, expected in quantity by 1 May, has been further delayed because of "a shortage of Australian standard 7 MHz bandwidth TV tuners." When is a "standard" not a "standard?" When it is adopted by Australia!

Ten's digital service transmitter (channel 11 in Sydney) has increased power from 15 to 30 kW ERP. Seven Digital and Nine Digital have been at the higher power since 1 January. while ABC operates at 50 kW ERP.

Red Herring. Always controversial American technology magazine that pushes limits of comprehension and good taste. Check <http://www.msnbc.com/news/562068.asp?cpl=1> for their take on the USA 8VSB debacle. It minces no words and certainly is not supportive of the US FCC's decisions to date. Latest round of "super" 8VSB processing chips - Oren and Broadcom. Oren believes that if TV stations will lengthen the duration of something called the "training signal" that receivers would capture, lock onto and recover the 8VSB with a higher performance rate. Several TV stations have promised to test this thesis - reportedly making this change will not have an adverse effect on existing ATSC receivers (although that universe is very small) and could improve reception. Oren has an interesting promotional scheme - as the would be producer of 8VSB processing chips for American TV receivers: "8VSB that works." The corollary is obvious.

Singapore's transit-bus DVB-T. We reported (CTD#75) Singapore's new DVB-T is not being allowed into homes - yet. But it has been installed in all of the country's public transport buses. Now a group has asked that they be "spared from compulsory TV watching while going about their business in public transport."

End of an era? New US FCC Chairman Michael Powell when asked about the *real* importance of getting a DVB-T system that works properly: *"I have strong doubts about the future importance of traditional over-the-air television in a nation where more than 80% of the households rely on cable or satellite for their TV viewing."* Actually, in April 1 release study, 71.3% of US homes have cable, 11.1% have satellite which means 17.6% still rely on over-the-air broadcast television exclusively.

There are two ways to receive CTD.

(1) "Borrow" someone else's edition and make your own copy.

(2) **SUBSCRIBE DIRECTLY.**

Actually, we prefer number (2).

And, it keeps you from becoming a criminal by violating our copyright.

And here is the really baffling part.

If you subscribe ONLY to CTD, it is \$250 per year.

But - if you subscribe to CTD **and** SatFACTS Monthly - the total is \$195 in New Zealand, \$221 in Australia, \$195 (US\$) elsewhere. You receive **two** for less than the price of one!

=====

☐ OK - Send me TWO for less than the price of one!

☐ I already subscribe to SatFACTS - charge me \$125 (NZ\$ in NZ, A\$ in Australia, US\$ elsewhere) and add CTD to my subscription entitlement!

NAME _____

COMPANY _____

Mailing address _____

Town/City _____ Postal Code _____ Country _____

_____ Charge my ☐ VISA ☐ Mastercard
Number _____ - _____ - _____ - _____ expires _____ / _____
in card name of _____

☐ My/our cheque in full payment enclosed

Instruction: You may FAX this form to country code 64 - 9 - 406 -1083, or, you may provide all of the information requested here via email to skyking@clear.net.nz or you may mail to RB Cooper, PO Box 330, Mangonui, Far North, New Zealand.